REMARKS

Applicant requests favorable reconsideration and allowance of the subject application in view the preceding amendments and the following remarks.

Claims 1 through 10 are presented for consideration. Claim 6 has been amended to correct an informality. Claims 1 and 9 are independent.

Applicant submits that the cited art, whether taken individually or in combination, does not teach or suggest such features of the present invention, as recited in independent claims 1 and 9 and Applicant requests favorable reconsideration and withdrawal of the rejections set forth in the above-noted Office Action.

Claims 1-4, 9 and 10 have been rejected under 35 U.S.C. § 102 as being anticipated by U.S. patent application publication number 2002/0180946 to Bisschops et al. This rejection is respectfully traversed.

Pending independent Claim 1 is directed to an EUV exposure apparatus that scans and exposes a pattern of an original plate to a substrate in a vacuum. In the apparatus, an original plate stage moves the original plate and a substrate stage moves the substrate. An electromagnetic motor disposed in the vacuum drives at least one of the original plate stage and the substrate stage. A cooling unit cools the electromagnetic motor an amount sufficient to prevent overheat damage of the electromagnetic motor resulting from heat generated by the electromagnetic motor.

Pending independent Claim 9 is directed to exposure apparatus that exposes a pattern to a substrate in a vacuum. In the apparatus, a substrate stage moves the substrate and an

electromagnetic motor disposed in the vacuum drives the substrate stage. A cooling unit cools the electromagnetic motor an amount sufficient to prevent overheat damage to the electromagnetic motor caused by heat generated by the electromagnetic motor.

In Applicant's view, Bisschops et al. discloses a motion feed-through in a vacuum chamber in which a long-stroke movement is fed-through into a vacuum chamber by providing a sliding seal over an aperture in the vacuum chamber wall. The object to be moved, which may be a mask or wafer table in a lithographic apparatus, within the vacuum chamber is connected to or mounted on the sliding seal and moved by movement of the sliding seal. The sliding seal may be a plate, a bowl or a labyrinth of interleaved plates.

According to the invention defined in Claims 1 and 9, an electromagnetic motor is disposed in a vacuum with a substrate and/or an original plate and drives the substrate stage and/or the original plate stage. A cooling unit cools the electromagnetic motor an amount sufficient to prevent overheat damage to the motor caused by heat generated by the motor. Advantageously, the cooling of the electromagnetic motor in the vacuum enables exposure to be carried out with high accuracy while preventing overheat damage to the motor.

Bisschops et al. may disclose the use of EUV exposure apparatus. In Bisschops et al., a vacuum chamber has a substrate stage and a water cooled linear motor. The water cooled linear motor, however, as shown in Figs. 2, 7 and 8 and as disclosed in paragraph 0088 is placed in a motor compartment M at atmospheric pressure so that the motors are not in a vacuum. Accordingly, it is not seen that Bisschops et al.'s water cooled motor in a motor compartment at atmospheric pressure separated from a substrate stage in a vacuum compartment could possibly

teach or suggest the feature of an electromagnetic motor in a vacuum for driving an original plate stage and/or a substrate stage in the vacuum combined with the feature of cooling the electromagnetic motor an amount sufficient to prevent overheat damage to the motor caused by heat generated by the motor as in Claims 1 and 9. It is therefore believed that pending Claims 1 and 9 are completely distinguished from Bisschops et al.

Claims 1-10 were rejected under 35 U.S.C. § 103 as being unpatentable over the U.S. patent application publication number 2002/0075467 to Tanaka et al. in view of the Bisschops et al. publication. This rejection is respectfully traversed.

In Applicant's opinion, Tanaka et al. discloses exposure apparatus in which a predetermined pattern is transferred by applying an exposure beam while driving a stage by a driver so as to move an object along a moving plane. While the exposure beam is being applied during exposure, a counter stage is moved in a direction opposite from the moving direction of the stage in response to the movement of the stage, thereby substantially completely absorbing reaction force produced due to the driving of the stage. Accordingly, vibration and unbalanced load are not produced due to the driving of the stage, and precise exposure is possible. Furthermore, when the exposure beam is not applied, a correction device corrects the position of the counter stage so as to ensure that there is sufficient room (stroke) for the counter stage to move in a subsequent exposure operation. This makes it possible to shorten the stroke provided for the counter stage and to thereby prevent the apparatus from being of increased size.

It is a feature of Claims 1 and 9 that an electromagnetic motor is disposed in the vacuum of an exposure apparatus and drives a substrate stage and/or an original plate stage in the vacuum

and another feature that the electromagnetic motor is cooled by a cooling unit an amount sufficient to prevent overheat damage to the motor caused by heat generated by the motor. It is recognized by the Examiner that Tanaka et al. does not disclose placing a substrate in a vacuum. Further, Tanaka et al. is devoid of any disclosure that any drive motor for the substrate is in a vacuum. As a result, it is not seen that Tanaka et al. in any manner suggests the feature of Claims 1 and 9 of an electromagnetic motor disposed in a vacuum to drive an original plate or a substrate in the same vacuum.

As aforementioned, Bisschops et al. only teaches that a substrate in a vacuum chamber V is driven by linear motors which are disposed in a motor compartment M at atmospheric pressure separated from a substrate stage in the vacuum compartment V. Accordingly, neither Bisschops et al. nor Tanaka et al. teach or suggest an electromagnetic motor in a vacuum that has a substrate and/or an original plate and is cooled sufficiently to prevent its overheating. It is therefore not seen that the addition of Bisschops et al. which requires a driving motor in an atmospheric pressure motor compartment to Tanaka et al. that fails to suggest either a substrate or a drive motor in a vacuum could possibly suggest the feature of Claims 1 and 9 of an electromagnetic motor in a vacuum for driving an original plate stage and or a substrate stage in the vacuum combined with the feature of cooling the electromagnetic motor an amount sufficient to prevent overheat damage to the motor caused by heat generated by the motor. It is therefore believed that pending Claims 1 and 9 are completely distinguished from Bisschops et al. or any combination of Bisschops et al. and Tanaka et al. and are allowable.

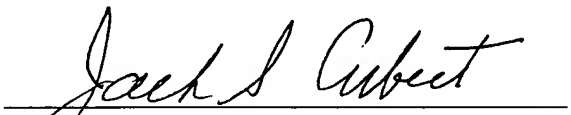
For the foregoing reasons, Applicant submits that the present invention, as recited in independent claims 1 and 9, is patentably defined over the cited art.

Dependent claims 2 through 8 and 10 also should be deemed allowable, in their own right, for defining other patentable features of the present invention in addition to those recited in independent claims 1 and 9. Further individual consideration of these dependent claims is requested.

Applicant further submits that the instant application is in condition for allowance. Favorable reconsideration, withdrawal of the rejections set forth in the above-noted Office Action and an early Notice of Allowance are requested.

Applicant's attorney, Steven E. Warner, may be reached in our Washington, D.C. office by telephone at (202) 530-1010 All correspondence should continue to be directed to our address given below.

Respectfully submitted,



Attorney for Applicant
Jack S. Cubert
Registration No. 24,245

FITZPATRICK, CELLA, HARPER & SCINTO
30 Rockefeller Plaza
New York, New York 10112-3801
Facsimile: (212) 218-2200